

Pre-Hospital Esophageal Tracheal Airway (COMBITUBE®) Insertion Program Overview

Program Title

“Pre-Hospital Esophageal Tracheal Airway (COMBITUBE®) Insertion”

Student Eligibility

- Emergency Medical Technicians certified as Intermediates or Paramedics to perform endotracheal intubation in the Commonwealth of Massachusetts.

Course Format

- Although this material may be presented in a number of formats, a lecture / discussion model with practical scenario is given here. This program may be combined with other standing programs such as ACLS, PALS, or the Commonwealth's ALS Interfacility Transfer Training Program.

Objectives

Upon completion of the training program, the provider will be able to:

- Discuss the Massachusetts Pre-Hospital Treatment Protocol concerning Esophageal Tracheal Airway (ETA) tube insertion
- State the indications and contraindications of placing an ETA tube.
- Describe the procedure of placing an ETA tube.
- Demonstrate the placement of an ETA tube in an intubation manikin in a classroom setting.

Outline

- See the attached Program Outline

Teaching Methods

- Lecture / Discussion
- Video Tape Presentation
- Practical Skill Sessions / Stations
- Open Question and Answer Periods

Faculty

- Any Massachusetts provider currently authorized to perform the skill of Esophageal Tracheal Airway insertion. This may include MD, PA, or RN. EMT-Paramedics or EMT-Intermediates who have previously completed this program are also eligible.

Pre-Hospital Esophageal Tracheal Airway (COMBITUBE®) Insertion References

Texts:

- Brady Basic Trauma Life Support, Fourth Edition, Campbell, John E., Prentice-Hall, Inc., 2000, pages 58-59, 290-292.
- Brady Paramedic Care: Principles & Practice, Volume 1: Introduction, Bledsoe, Bryan E., Prentice-Hall, Inc., 2000, pages 571-573.
- Emergency Medicine: Concepts and Clinical Practice, Fourth Edition, Rosen, Peter, Editor-in-Chief, 1998, pages 15-16.
- Guidelines 2000 for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care, An International Consensus on Science, International Liaison Committee on Resuscitation, Supplement to Circulation, Volume 102, Number 8, August 22, 2000, page I-98.
- National Registry of Emergency Medical Technicians, Advanced Level Practical Examination, Dual Lumen Airway Device (COMBITUBE® or PTL®) skill sheet, NREMT, Inc., Columbus, OH, printing P304/8-003K, 2000.
- Paramedic Textbook, Second Edition, Sanders, Mick J., Mosby, Inc., 2000, pages 417-18.
- PHTLS Basic and Advanced Prehospital Trauma Life Support, Forth Edition, Prehospital Trauma Life Support Committee of the National Association of Emergency Medical Technicians in cooperation with the Committee on Trauma of the American College of Surgeons, Mosby, Inc., 1999, page 67, 86-88.
- Sheridan® COMBITUBE® and COMBITUBE SA® manufacturer's instructions and packaging, The Kendall Company, Mansfield, MA, printing 16622-00, 1998.
- Textbook of Advanced Cardiac Life Support, Cummins, Richard O., Editor, America Heart Association, 1997, page 2-11.

Journal Articles:

- "Successful prehospital airway management by EMT-Ds using the Combitube," Ochs, M, Prehospital Emergency Care, 2000 Oct-Dec; 4(4):333-7.
- "A comparison of two airway aids for emergency use by unskilled personnel, the Combitube and laryngeal mask," Yardy N, Hancox D, Strang T, Anaesthesia, 1999 Feb; 54(2): 181-3.
- "The PTL, Combitube, laryngeal mask, and oral airway: a randomized prehospital comparative study of ventilatory device effectiveness and cost-effectiveness in 470 cases of cardiorespiratory arrest," Rumball CJ, MacDonald D, Prehospital Emergency Care, 1997 Jan-Mar; 1(1) 1-10.
- "Airway management during cardiopulmonary resuscitation – a comparative study of bag-valve-mask, laryngeal mask airway, and combitube in a bench model," Doerges V, Sauer C, Ocker H, Wenzel V, Schmucker P, Resuscitation, 1999 Jun; 41(1): 63-9.
- "Complications associated with the use of the Esophageal-Tracheal Combitube," Vezina D, Lessard MR, Bussieres, J, Topping C, Trepanier CA, Canadian Journal of Anaesthesia, 1998 Jan; 45(1): 76-80.
- "Ability of paramedics to use the Combitube in prehospital cardiac arrest," Atherton GL, Johnson JC, Annals of Emergency Medicine, 1993 Aug; 22(8): 1263-8.
- "Failed rapid sequence intubation in trauma patients: esophageal tracheal combitube s a useful adjunct," Blostein PA, Koestner AJ, Hoak S, Journal of Trauma, 1998 Mar; 44(3): 534-7.

Pre-Hospital Esophageal Tracheal Airway (COMBITUBE[®]) Insertion Program Outline

1. Program Overview (5 to 15 minutes)

- 1.1. Student Registration and Administrative Concerns
- 1.2. Introduction of Faculty
- 1.3. Program Objectives
- 1.4. Program Outline
- 1.5. Program Duration

2. Review of Massachusetts Protocol concerning ETA tubes (5 to 15 minutes)

- 2.1. Statewide Treatment Protocols
- 2.2. Indications
 - 2.2.1. Airway control in the absence of other effective methods.
- 2.3. Contraindications
 - 2.3.1. The ETA is contraindicated in patients with an intact gag reflex, patients with known esophageal disease, patients who have ingested caustic substances, and patients under 5 feet tall for COMBITUBE[®] or under 4 feet tall for COMBITUBE SA[®].

3. Review of local policies, including documentation (5 to 15 minutes)

- 3.1. Local Policies inserted here.
- 3.2. Local documentation policies inserted here.
 - 3.2.1. Documentation may include:
 - 3.2.1.1. Time procedure was performed
 - 3.2.1.2. Tube size (COMBITUBE[®] or COMBITUBE SA[®])
 - 3.2.1.3. Tube placement check, and by what manner
 - 3.2.1.4. Degree of difficulty encountered
 - 3.2.1.5. Complications encountered
 - 3.2.1.6. Name of provider performing procedure

4. Review of pertinent anatomy (5 to 15 minutes)

- 4.1. Upper airway structures
- 4.2. Upper gastrointestinal tract

5. Equipment introduction and Procedure demonstration (15 to 45 minutes)

- 5.1. Equipment
 - 5.1.1. Personal protective equipment
 - 5.1.2. Esophageal Tracheal Airway (COMBITUBE[®] or COMBITUBE SA[®])
 - 5.1.3. 140 ml syringe
 - 5.1.4. 20 ml syringe
 - 5.1.5. Mask elbow (fluid deflector elbow)
 - 5.1.6. 10 or 12 Fr suction catheter
 - 5.1.7. Water-soluble lubricant
 - 5.1.8. Adhesive tape
 - 5.1.9. Bag Valve Mask resuscitator
 - 5.1.10. Oxygen source
 - 5.1.11. Suction device
- 5.2. Procedure (sharply abbreviated here – see manufacturer's directions for use.)
 - 5.2.1. Ventilate the patient
 - 5.2.2. Select the correct size tube
 - 5.2.3. Test integrity of cuffs
 - 5.2.4. Lubricate tube with water soluble lubricant
 - 5.2.5. Attach fluid deflector elbow
 - 5.2.6. Lift the tongue and jaw upward with one hand

- 5.2.7. Insert tube with other hand so curve of tube matches natural curvature of the pharynx, maintaining a midline position until the teeth or alveolar ridges lie between the two printed bands.
- 5.2.8. Inflate #1 Blue pilot balloon with 100 ml or air from a 140 ml syringe
- 5.2.9. Inflate #2 White pilot balloon with 15 ml or air from a 20 ml syringe
- 5.2.10. Ventilate through the longer Blue tube labeled #1. If auscultation of breath sounds is positive, and auscultation of gastric insufflation is negative, continue ventilations.
- 5.2.11. If auscultation of breath sounds is negative and auscultation of gastric insufflation is positive, immediately begin ventilating through the shorter clear tube labeled #2. Confirm tracheal ventilation by auscultation of breath sounds and absence of gastric insufflation.
- 5.2.12. If auscultation of breath sounds remains negative and auscultation of gastric insufflation is negative, the tube may have been advanced too far in the pharynx. Deflate the #1 pilot balloon, move the tube 203 cm out of the patient's mouth,. Re-inflate the #1 pilot balloon/cuff with 100 ml of air and ventilate through the longer, #1 tube. If auscultation of breath sounds is positive, and auscultation of gastric insufflation is negative, continue ventilation.
- 5.2.13. Secure the tube.
- 5.2.14. Monitor end-tidal carbon dioxide level.
- 5.2.15. Document the procedure.
- 5.3. Procedure to replace the COMBITUBE® with an endotracheal tube (sharply abbreviated here – see manufacturer's directions for use.)
 - 5.3.1. Deflate the large latex cuff through the #1 pilot balloon.
 - 5.3.2. Move the COMBITUBE® to the left side of the mouth.
 - 5.3.3. Intubate with an endotracheal tube using currently accepted medical techniques.
 - 5.3.4. Deflate the distal cuff of the COMBITUBE® and remove carefully.
- 5.4. Review of manufacturer's cautions and warnings.

6. Student practical skill sessions/stations (20 to 60 minutes)

- 6.1. Recommended one instructor per six to eight students and one training manikin capable of accepting an ETA tube.
- 6.2. Skill sessions should be scenario-based (see attached sample cases.)
- 6.3. Larger groups may benefit from station rotation in timed intervals.

7. Written and Practical Examination (30 minutes)

8. Review, Questions and Answers (5 to 15 minutes)

Total Program Time 90 to 210 minutes

Pre-Hospital Esophageal Tracheal Airway (COMBITUBE®) Insertion Sample Cases

Case One

A 37-year-old female patient collapsed in her living room. She is in cardiac arrest and routine ACLS care is in progress. You have been unable to intubate the patient's trachea after multiple attempts, and your attempts at bag-valve-mask ventilation are inadequate. Using the manikin and materials provided, describe and perform all airway maintenance procedures indicated by Massachusetts Protocols.

Case Two

A 15-year-old female pedestrian was struck by a motor vehicle at a moderate speed. She is unconscious to deep painful stimuli and is suffering from severe facial trauma. Your efforts at maintaining the patient's airway with BLS techniques and generous suctioning are inadequate. The patient is approximately 5 feet tall. Using the manikin and materials provided, describe and perform all airway maintenance procedures indicated by Massachusetts Protocols.

Case Three

You are called to the local recreational center where the lifeguards have removed a ten-year-old male patient from the pool. You find him deeply unconscious, without a gag reflex. His respirations are 4 per minute and he has a blood pressure of 150/100 mmHg. He has been c-spine immobilized prior to your arrival. The patient is over four feet tall. As you prepare to intubate the patient, you find your laryngoscope is not operational. Using the manikin and materials provided, describe and perform all airway maintenance procedures indicated by Massachusetts Protocols.

Case Four

You have been unable to intubate a 55-year-old male patient unconscious after receiving a gunshot wound to the thorax. You are having difficulty maintaining the patient's airway using BLS methods. Using the manikin and materials provided, describe and perform all airway maintenance procedures indicated by Massachusetts Protocols.

Case Five

A 31-year-old male patient was involved in a motorcycle accident. He does not respond verbally, is bleeding from facial injuries, and is combative while lying supine on the roadside. His vital signs are BP 88/P, P134, and R44. Using the manikin and materials provided, describe and perform all airway maintenance procedures indicated by Massachusetts Protocols.

Pre-Hospital Esophageal Tracheal Airway (COMBITUBE®) Insertion Miscellaneous Notes for Instructors

- The device is supplied clean, non-sterile, for single patient use. The user is responsible for avoiding contamination prior to use. Device is not to be cleaned or reused.
- The ETA is available in two sizes – the COMBITUBE®, for patients 5 feet or taller, and the COMBITUBE SA® for patients 4 feet to 5.5 feet tall.
- The COMBITUBE® is available packaged singly (tube only, 5-18241), in a rigid plastic tray (5-18541) or in a roll-up kit (5-18441).
- The COMBITUBE SA® is available packaged singly (tube only, 5-18237), in a rigid plastic tray (5-18537) or in a roll-up kit (5-18437).
- A training COMBITUBE (with more durable cuffs) and training video are also available.
- The Sheridan COMBITUBE® and COMBITUBE® packaging provides this cautionary statement **“CAUTION: This product contains natural rubber latex which may cause allergic reactions.”**
- The manufacturer’s instruction sheet packaged with each tube (Sheridan printing 16623-00) should be read and understood by every user of the device.

Pre-Hospital Esophageal Tracheal Airway (COMBITUBE®) Insertion Performance Checklist

Provider's Name _____ Date _____

Mass. EMT Number # _____ Level (circle) EMT EMT-I EMT-P

Service _____

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When demonstrating the insertion of an ETA tube (Combitube®), the provider should:

	Pass	Fail
Verbalizes the indications for the Airway	<input type="checkbox"/>	<input type="checkbox"/>
Verbalizes the contraindications for the Airway	<input type="checkbox"/>	<input type="checkbox"/>
Proper use of PPE	<input type="checkbox"/>	<input type="checkbox"/>
Assembles all necessary equipment, selects proper size device	<input type="checkbox"/>	<input type="checkbox"/>
Ventilates patient prior to insertion	<input type="checkbox"/>	<input type="checkbox"/>
Tests cuff integrity properly (blue 100cc, white 15cc)	<input type="checkbox"/>	<input type="checkbox"/>
Lubricates tube	<input type="checkbox"/>	<input type="checkbox"/>
Attaches fluid deflector elbow to #2 lumen	<input type="checkbox"/>	<input type="checkbox"/>
Opens and clears airway and positions head properly	<input type="checkbox"/>	<input type="checkbox"/>
Inserts device properly into mouth and gently advances to correct depth	<input type="checkbox"/>	<input type="checkbox"/>
Inflates pilot balloons in correct order and volume of air, removes syringes	<input type="checkbox"/>	<input type="checkbox"/>
Ventilates through correct lumen and auscultates breath sounds	<input type="checkbox"/>	<input type="checkbox"/>
Verbalizes appropriate breath sounds for correct placement	<input type="checkbox"/>	<input type="checkbox"/>
Verbalizes proper suctioning method	<input type="checkbox"/>	<input type="checkbox"/>
Verbalizes proper method for repositioning	<input type="checkbox"/>	<input type="checkbox"/>
Verbalizes proper ET intubation method with ETA in place	<input type="checkbox"/>	<input type="checkbox"/>
Properly secures device in place	<input type="checkbox"/>	<input type="checkbox"/>

Final Performance	PASS	FAIL
	<input type="checkbox"/>	<input type="checkbox"/>

Comments _____

Instructor / Examiner Print Name _____

Credentials

Instructor / Examiner Signature _____

Date